

# Commentary on: “Fatal Isolated Cervical Spine Injury in a Patient with Ankylosing Spondylitis: A Case Report”

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In this article, the authors present an 88-year-old man with ankylosing spondylitis (AS) who reportedly fell and sustained a C6–C7 dislocation and presented with an incomplete spinal cord injury (SCI). The patient died within 30 minutes of presentation secondary to respiratory distress. There are an increasing number of patients with ankylosing conditions, either AS or diffuse idiopathic skeletal hyperostosis, presenting to emergency rooms with fractures. Most authors tend to lump the ankylosing conditions into the same category because their presentations, fractures, and management are generally similar.<sup>1</sup> The reported prevalence of vertebral fractures in ankylosing conditions varies between 10 and 17%, and the incidence of neurologic complications after a vertebral fracture varies between 29 and 91%.<sup>2–5</sup> Most cases do not progress to very early death as in this case, although the article by Caron et al suggests that 84% of patients older than 80 years of age with a fracture in an ankylosing condition will die within the first year. Of those patients, 81%, regardless of age, will die within the initial hospitalization.<sup>1</sup> Thus, the presented patient was at serious risk of dying within his hospitalization regardless of management. In some ways, this patient dying acutely relieved the clinical staff of having to deal with the ethical issues and management discussion that often surround these patients and their families.

The exact cause of death was not exactly known; several causes are unique to this patient population. First, these patients have rigid spines and no flexibility, which makes baseline spinal alignment of these patients challenging. These patients should not necessarily be maintained on a backboard with a hard collar as that alone may displace the fracture and place their cord at further risk of deterioration. A conscious patient may be able to guide the initial response team on what is a comfortable position, which often is a flexed position of the neck with the head supported on pillows. Ignoring discomfort or rigidly following guidelines that work well

for people with normal, flexible spines can have deleterious neurologic consequences in patients with AS. These issues are nicely discussed in this case report and are a very important point not only for the surgical team but also for initial responders and emergency room staff.

Second, patients with ankylosing conditions are also at increased risk for epidural hematomas, which may occur in as many as 10% of patients.<sup>1</sup> Certainly in this patient with an international normalized ratio of 5, this diagnosis would have to be high on the differential as a potential cause of progressive respiratory failure. It is imperative that clinicians be aware of epidural hematomas as a potential cause of progressive neurologic decline. An injury in this patient at the C6–C7 level could potentially cause an epidural hematoma, which could easily progress proximally and contribute toward respiratory failure in a patient who already has an incomplete SCI and likely already has some respiratory compromise. Many advocate for magnetic resonance imaging to assess for epidural hematomas in patients with ankylosing conditions, which progress proximally and/or distally to the fracture and cause progression of a neurologic deficit.<sup>6</sup>

The authors nicely present a very interesting and unfortunate case of rapid respiratory demise and death. There is much to be learned from this case, and the authors do a good job of highlighting many of the pertinent issues related to patients with AS and displaced cervical fractures. Early diagnosis of these fractures through appropriate studies is critical to manage these patients in a timely manner. Caron et al found that 19% of the 112 patients in their study had a delay in diagnosis and 81% with a delay had a deterioration in their neurologic status.<sup>1</sup> It is imperative for clinicians to be aware of the unique associated problems that can develop to optimally manage these patients who are fraught with potentially devastating complications.

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## References

- 1 Caron T, Bransford R, Nguyen Q, Agel J, Chapman J, Bellabarba C. Spine fractures in patients with ankylosing spinal disorders. *Spine (Phila Pa 1976)* 2010;35(11):E458–E464
- 2 Cooper C, Carbone L, Michet CJ, Atkinson EJ, O'Fallon WM, Melton LJ III. Fracture risk in patients with ankylosing spondylitis: a population based study. *J Rheumatol* 1994;21(10):1877–1882
- 3 Vosse D, Feldtkeller E, Erlendsson J, Geusens P, van der Linden S. Clinical vertebral fractures in patients with ankylosing spondylitis. *J Rheumatol* 2004;31(10):1981–1985
- 4 Hunter T, Dubo HI. Spinal fractures complicating ankylosing spondylitis. A long-term followup study. *Arthritis Rheum* 1983; 26(6):751–759
- 5 Fox MW, Onofrio BM, Kilgore JE. Neurological complications of ankylosing spondylitis. *J Neurosurg* 1993;78(6): 871–878
- 6 Elgafy H, Bransford RJ, Chapman JR. Epidural hematoma associated with occult fracture in ankylosing spondylitis patient: a case report and review of the literature. *J Spinal Disord Tech* 2011; 24(7):469–473